

What is claimed is:

1. A hybrid ultra reliable power generating system comprising:
  - a) a primary power unit producing electric power that is supplied to a load; and
  - b) a secondary power unit in the form of a closed cycle vapor turbine (CCVT) system that is capable of producing 100% of the electric power that is produced by the primary power unit and which is heated in hot standby by rejected heat of the primary power unit, wherein the vaporizer of the CCVT is maintained during hot standby at a temperature above its nominal operating temperature and the vapor turbine of the CCVT is maintained at idle hot standby at a rotating speed above its nominal rotating speed.
2. A hybrid power generating systems according to claim 1 wherein during hot standby said CCVT does not supply any power to said load.
3. A hybrid power generating system according to claim 1 wherein said CCVT includes a burner that combusts the same fuel as supplied to the primary power unit and supplies sufficient heat so that the CCVT produces electric power that is supplied to the load at a 100% level of power produced by said primary power unit once the primary power unit stops operation.
4. A hybrid power generating system according to claim 1 wherein said primary power unit is a high temperature fuel cell.

5. A hybrid power generating system according to claim 1 wherein said primary power unit is a solid oxide fuel cell.

6. A hybrid power generating system according to claim 1 wherein said primary power unit is a molten carbonate fuel cell.

7. A hybrid power generating system according to claim 1 wherein said primary power unit is a diesel generator.

8. A hybrid power generating system according to claim 1 wherein said primary power unit is a engine generator.

9. A hybrid power generating system according to claim 1 wherein said primary power unit is a gas turbine generator.

10. A hybrid power generating system according to claim 1 wherein said primary power unit is a stirling engine generator.

11. A hybrid power generating system according to claim 1 wherein said CCVT is a closed vapor turbine operating according to an organic Rankine cycle.

12. A hybrid power generating system according to claim 1 wherein said CCVT is a closed vapor turbine operating according to a steam Rankine cycle.

13. A hybrid power generating system according to claim 4 wherein said high temperature fuel cell comprises a replaceable fuel cell cartridge.

14. A hybrid power generating system according to claim 1 wherein said secondary CCVT system produces electric power that is supplied to the load when said said primary power unit is

operating, wherein the level of electric power of said secondary CCVT is up to 33% of the electric power level produced by said primary unit.

15. A method of generating continuous power using a hybrid ultra reliable power generating system comprising:

a) providing a primary power unit producing electric power that is supplied to a load; and

b) providing a secondary power unit in the form of a closed cycle vapor turbine (CCVT) systems that is capable of producing 100% of the electric power that is produced by the primary power unit and which is heated in hot standby rejected heat of the primary power unit, wherein the vaporizer of the CCVT is maintained during hot standby at a temperature above nominal operating temperature and the vapor turbine of the CCVT is maintained at idle during hot standby at a rotating speed above its nominal rotating speed.

16. A method according to claim 15 wherein the step of providing a secondary power unit in the form of a closed cycle vapor turbine (CCVT) system that is capable of producing 100% of the electric power that is produced by the primary power unit and which is heated in hot standby by rejected heat of the primary power unit is carried out such that said secondary CCVT does not supply electric power to the load during hot standby.

17. A method according to claim 15 including the step of

providing a burner that combusts the same fuel as supplied to said primary power unit and that supplies sufficient heat so that the CCVT produces electric power that is supplied to the load at a 100% level of power produced by said primary unit once the primary power unit stops operation.

18. A method according to claim 15 including the step of providing a high temperature fuel as the primary power unit.

19. A method according to claim 15 including the step of providing a diesel generator as the primary unit

20. A method according to claim 15 including the step of providing a closed cycle vapor turbine operating according to an organic Rankine cycle as the secondary CCVT.

21. A hybrid ultra reliable power generating system comprising:

a) a primary power unit producing electric power that is supplied to a load; and

b) a secondary power unit in the form of a closed cycle vapor turbine (CCVT) system which is heated by the rejected heat of the primary power unit and produces electric power that is supplied to a load, wherein working fluid in the vaporizer of the (CCVT) is heated by the heat rejected by the primary power unit, the improvement of said power generating system being that said secondary power unit is capable of producing approximately 5 to 15% of the electric power that is produced by the primary power unit.

22. A hybrid power generating systems according to claim 21 wherein the power produced by the primary power unit, ranges from approximately 85 to 95% of the load.

23. A hybrid power generating systems according to claim 21 wherein the power level of said system ranges from approximately 1 to 40 MW.

24. A hybrid power generating system according to claim 21 wherein said CCVT includes a burner that combusts the same fuel as supplied to the primary power unit and supplies sufficient heat so that the CCVT continues to produce approximately 5 to 15% of power produced by said primary power unit upon a power outage of the primary power unit.

25. A hybrid power generating system according to claim 21 wherein said primary power unit is a high temperature fuel cell.

26. A hybrid power generating system according to claim 25 wherein said primary power unit is a molten carbonate fuel cell.

27. A hybrid power generating system according to claim 21 wherein said CCVT is a closed cycle vapor turbine operating according to an organic Rankine cycle.

28. A method for producing continuous power using a hybrid ultra reliable power generating system comprising:

a) providing a primary power unit producing electric power that is supplied to a load; and

b) providing a secondary power unit in the form of a

closed cycle vapor turbine (CCVT) system which is heated by the rejected heat of the primary power unit and produces electric power that is supplied to a load, wherein working fluid in the vaporizer of the (CCVT) is heated by the heated by the primary power unit, the improvement of said method being that said secondary power unit produces approximately 5 to 15% of the electric power that is produced by the primary power unit.

29. A method according to claim 28 wherein the power produced by the primary power unit, ranges from approximately 85 to 95% of the load.

30. A method according to claim 28 wherein the power level of said hybrid ultra reliable power generating system ranges from approximately 1 to 40 MW.

31. A method according to claim 28 further comprising the step of providing a burner that combusts the same fuel as supplied to said primary power unit and that supplies sufficient heat so that the CCVT continues to produce approximately 5 to 15% of power produced by said primary power unit upon a power outage of the primary power unit.

32. A method according to claim 28 wherein said primary power unit is a high temperature fuel cell.

33. A method according to claim 28 wherein said primary power unit is a molten carbonate fuel cell.

34. A method according to claim 28 wherein said CCVT is a

**17052/US/03CIP**

closed cycle vapor turbine operating according to an organic Rankine cycle.